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Brooks Fiber Properties, Inc.
May 23, 1997

The telecommunications industry requires a significant amount of data be passed between the various companies. This data needs to pass quickly and in an electronic media so that the data recipient can quickly move the information through its systems.

As we work to establish our billing processes and the required data exchanges with the various RBOC's, it has highlighted a need for a fresh look at the current processes and standardization. Some standards do exist today, while many others need to be addressed. A standardization of interfaces needs to include process, data formats and required data elements that are necessary to ensure accurate and timely billing information.

Setting up the required interfaces with one RBOC is difficult and this is multiplied when dealing with multiple RBOC's. Brooks has had to work the same type issues with each RBOC on a one-item-at-a-time basis. In turn, this makes the process more costly as well as time consuming.

Types of billing interfaces examples:

- Operator Services
- IntraLATA Alternately Billed messages (Collect, Billed-to-Third)
- InterLATA Alternately Billed messages (Collect, Billed-to-Third)
- Local/IntraLATA Access Records
- InterLata Access Records (Meet-Point-Billing)
- Unbundled element cost information (billing verification)
- Resale Billing Data

Brooks is dealt with conforming to how each RBOC "works" in their region. In inquiring how we work together, we are faced with statements like, "this is how we do it in our region". This requires conforming to the special situations or existing systems in each region. There is no consideration given to change the process even if there is a better or more economical way. The burden is placed on the new entrant to expend the resources to conform.

Some of these interfaces have not previously been done. Competitors in the RBOC regions have initiated these requirements. Many of the interfaces are complex and require significant resources. Sometimes progress on the interfaces seems to be slow. This may be resultant of the complex issues and lack of motivation by the RBOC's. In item #7 below, I have mentioned an issue whereas we have been asking for an electronic interface for over seven months.

Examples listed below highlight some of the differences we have faced in setting up the various interfaces.

Examples:

1. Clearinghouse records (Calling card, collect and Billed to Third).

- SWBT region IntraLATA toll-We must exchange records as category 92 records (EMR format) and with the NXX code to identify the billing company. The data exchange will be made via electronic tape.
- Bell South region IntraLATA toll- Bell South acts as the clearinghouse for these records in their region. Bell South will exchange these records in EMR format on a daily basis and use CMDS to send the traffic.
- Other Companies have similar processes to exchange clearinghouse records but with their own unique requirements.

2. IntraLATA toll records for collecting access.

   In certain states, (currently New Mexico and Arizona for Brooks) in order to be a IntraLATA toll provider, a company must participate in an ORP process Originating Responsibility Plan) for provisioning of IntraLATA toll. This is a clearinghouse for intraLATA toll records and access records in these states. The ORP is managed by US West in these states. Every company must submit their intraLATA toll records to the ORP for rating the access records. The ORP performs a "netting" of the access fees between companies and distributes or collects the moneys.

3. Local Access Record Exchange.

   There are not standards in the industry for formats, data substantiation requirements or billing formats. In working with each RBOC we are establishing the process and reporting requirements to bill each other for local access. A lack of standardization will lead to many disputes in this area.

4. Carrier Access Billing-

   Although many of the general requirements are the same between the RBOC's, a separate process has to be set-up with each group.

5. Billings from RBOC's to others for Unbundled Network Elements

   Charges for Unbundled Loops - There is a need for standardization and providing of electronic data. Theses invoices are sometimes in electronic format and sometimes paper format. In many cases the RBOC's have not yet indicated how the information will be made available.

   - Ameritech - For billing of certain network elements, an electronic bill is provide in a CABS format (Flat file). Other bills are sent in a paper format.
   - US West will supply either a paper bill or EDI version

     Unbundled loops - in CRIS format
     Resale - in CRIS format.

   - Others- To be determined.

6. Interfaces with Other Independent Telephone Companies and the RBOC's

   When dealing with the RBOC's and other Independent telephone companies, sometimes the LEC operates as a clearinghouse for records and sometimes we are required to set up separate agreements and processes to exchange records and charge each other. For example, for clearinghouse records(Third number billed, credit card) in SWBT regions, SWBT collects all of the traffic and passes the information between any independent telephone companies and Brooks. However, the access record exchange is not done this way. The access record exchange requires separate processes established between a Primary Toll Carrier (PTC) and the other independent companies. Brooks is a PTC in SWBT territory. For Secondary Carriers (SC's) SWBT is billed for the terminating access by the SC's but for Primary Toll Carriers (PTC's) separate agreements and processes have to be established for this same terminating access record exchange.

7. Record Exchange with Interim Number Portability.

   With Interim Number Portability the call details of the message are stopped as new calls are launched. This happens as a result of the launching of new calls that are forwarded from one switch to another. Therefore, the billing information does not flow through its normal processes. For example, when a Brooks customer with a ported number uses an Ameritech based phone to make a collect or Bill-to-Third-Number call, the billing message Brooks needs to place this charge on the end-user bill is sent to Ameritech. The message is sent to Ameritech since the NPA-NXX of the ported number is tied to Ameritech. Since Ameritech has this number assigned to Brooks, Ameritech charges these calls to Brooks. In order for the charges to get to the end-user, an electronic transmission of these messages should be sent to Brooks. When this fails to happen, Brooks then incurs expenses from the Ameritech invoice and sustains lost revenues from the lack of Brooks receiving electronic information for invoicing the end-user.

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Statement of Robert V. Falcone
AT&T District Manager - New Market Development
Operations Support Systems (OSSs) for Billing
Before the FCC, May 29, 1997

Thank you for the opportunity to be here today to provide a view on operations support systems (OSSs) needed to support the billing function.

Billing is the most common way that local telephone companies communicate with their customers. And in today's world, consumers simply will not stand for bills that are late or inaccurate. Thus, it is absolutely critical that monopoly incumbents' billing OSSs provide new entrants timely access to accurate and reliable billing information, whether they are buying resale services or unbundled elements.

Resale Services

When new entrants buy resale services, they need billing information from the incumbent's OSSs that is provided in an established electronic format and that meets at least three basic requirements:

- First, incumbents' billing data must provide accurate and complete records of all the usage for each customer, for each service that the customer subscribes to. New entrants need this information so they can bill their customers in a commercially reasonable way.
- Second, incumbents must provide usage information at frequent, agreed-upon intervals, usually daily. New entrants must have this information so they can respond to customers' inquiries in the same manner and timeframe that incumbents can.
- Third, when incumbents bill new entrants for resale services, those bills must be timely issued and accurately apply the appropriate resale discount. In addition, incumbents must timely and correctly bill new entrants for any non-recurring charges they are permitted to receive.

Billing for Unbundled Elements

When new entrants buy unbundled network elements, they also need accurate and timely billing, just as in the resale environment. However, billing for network elements poses additional challenges. For example, incumbents need to develop more comprehensive billing systems for some key elements. This is particularly true for the local switching element, because it has both flat-rated and usage-sensitive rate elements.

These billing issues are further magnified, because new entrants who buy unbundled switching not only need all of the billing information I described above in connection with resale. They also need timely and accurate data from the incumbent so they can bill:

> originating and terminating access charges to interexchange carriers (IXCs), and reciprocal compensation to other local carriers.

New entrants' need for these data arises directly from the requirements of the Commission's Local Service Order. That order correctly held that new entrants who purchase local switching are entitled to collect access charges. This entitlement is also a key factor underlying the Commission's decision

to use a market-based approach to access charge reform.

Although incumbents do not currently measure terminating access on a line-by-line basis, all data necessary to derive such billing records are available. However, incumbents' billing systems must be enhanced so they can provide access usage data to new entrants in the required format. In order not to preclude CLECs from using unbundled local switching before the necessary billing capabilities are in place and commercially operational, incumbents should do two things:

- First, each incumbent must develop terminating access usage factors. These factors are needed to allocate the terminating access minutes on the incumbent's switches among itself and all new entrants who are purchasing unbundled switching from it.
- Second, incumbents must provide new entrants with carrier-specific access usage information in a timely manner, so the new entrants can send terminating access bills to IXCs based on their own rates.

Appropriate OSSs are needed to perform both of these functions.

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BILLING PANEL

PREPARED STATEMENT OF MARY BERUBE, SENIOR PRODUCT MANAGER-NETWORK MARKETING & SALES, THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY (SNET)

There are four major points that I will highlight in my short statement. First, non-discriminatory access to information rather than "systems" can best meet CLEC customer's needs. Second, a single standard for billing format and media will not meet the requirements and capabilities of all CLECs and ILECs. Third, if a CLECs requested billing functionality exceeds what the ILEC provides for itself or its end users, CLECs should assume costs of development and implementation. Finally, the quality and accuracy of end user billing is the CLEC's responsibility.

Related to the first point, non-discriminatory access to information, rather than "systems" will best meet the needs of the CLECs. SNET and other ILECs have invested in large and complex billing systems to meet the growing number of purchasers of ILEC services. These systems collect, process, store, merge and distribute data to and from various systems and process millions of transactions daily. It would be burdensome and expensive for even the largest of carriers to directly access all of these billing systems and for the small carriers, impossible. It is the data within the systems that is critical to the CLEC rather than direct access to the systems themselves. The two types of data CLECs need from ILEC billing systems are: 1) billing detail for services that the CLEC purchases from the ILEC; and 2) end user usage data such as toll detail.

Related to my second point, a single standard for the exchange of billing information will not meet the requirements and capabilities of all CLECs and ILECs. For example, only the largest CLECs can presently accommodate electronic transmission of billing information; the smaller CLECs rely on traditional monthly paper bills. To mandate only an electronic standard discriminates against those CLECs who cannot cost justify or implement electronic capabilities. In addition, many CLECs have not requested daily usage feeds. While a daily usage feed may provide more timely data, some CLECs do not have the capability to accept and process this information. For example, SNET is currently providing daily usage feeds to only two of the CLECs operating in its territory.

To meet the billing information needs of the CLECs, an ILEC may be required to support new capabilities and functionalities which exceed what is currently available and provided to itself and its end users. Costs will be incurred to meet these additional requirements. Consequently, CLECs must assume the costs to develop and implement these capabilities.

Finally, the CLEC is responsible for the quality and accuracy of its end user billing. Since the CLEC has direct access to its customer information (with the possible exception of usage data), including the services it provides to its end user, the CLEC has the best source of data for end user billing. Thus, the CLECs should be accountable for

the reconciliation of services provided to end users and the services purchased from ILECs.

In closing, much progress has been made and is being made by both ILECs and CLECs to meet the billing needs and challenges of this new environment. As new, competitive carriers gain experience providing local service, new billing requirements will be identified and cost recovery mechanisms will be established. SNET and the CLECs are working hard to define and implement, with state regulatory commission oversight, the best approaches to provide non-discriminatory access to its billing functionality.

CC 96-98

Operations Support Systems - Preordering

Mark Sikora
GE Information Services
May 28, 1997

Introduction

For the past 20 years major companies throughout the world have been streamlining their business processes by using electronic commerce to exchange crucial business information. As a result of the Telecommunications Act of 1996, ILECs must provide CLECs electronic access to information to support the business processes associated with preordering, ordering, maintenance and repair, billing and other business functions, without detailed specification of the technology to be used to transfer this information. ATIS, special interest groups, ANSI subcommittees, vendors and consultants have been left to sort through the state of the art in electronic commerce technology available in today's market to evolve standards and methods of interconnection.

This is not a new dilemma for business to solve. On the contrary, it is incumbent upon the leaders in the electronic commerce and telecommunications industry to find our own solution to this 20 year old problem. We must temper our solution with both the requirements inherent in our industry's business processes as well the limitations of available technology. Moreover, we must implement solutions which are practical and serve the timeframes dictated by our business leaders, customers and regulators.

Electronic commerce is the result of the electronic bonding of trading partners to form a trading community. In order for these partners to trade electronically, they must first establish relationships at the business and technical levels. During this discussion we will concentrate on the technical considerations of electronic trading relationships.

Lessons From The Past

Globally GE Information Services (GEIS) has over 40,000 customers using its electronic commerce services and is considered to be the world's leading supplier of these services. We have been a first hand witness to the challenges associated with establishing and maintaining electronic trading communities for the past 25 years.

One important lesson we offer for consideration is no matter how well a hub or spoke partner plans its external communications or how closely

they adhere to ANSI guidelines, there will always be trading partners who require special treatment. It is our experience that even the most commonly used and well defined electronic business documents are often negotiated for each trading partner in a community. Therefore, in order to be successful in an electronic commerce initiative, each trading partner must be flexible in its implementation to accommodate variances in data formats, data representations and networking.

Another important lesson we've learned is that a new standard is likely to be a standard that will change. Both LECs and CLECs will be making substantial investments in OSS Interconnection systems and processes. Some of the largest non-DOD systems in the world, the provisioning systems of telecommunications companies, will undergo significant change to accommodate interconnection. We must prepare for changes in newly defined standards by buffering core internal business systems from a changing external communication environment.

Finally, we should be cognizant of and educate our business leaders that electronic commerce programs require ongoing investments in hardware, software, communications and human resources. It is impractical to expect that once the first successful test transaction goes through that the summit has been reached. It is instead more likely that the journey has just begun.

The Essence Of The Challenge

It is essential that we separate the business passion from the essence of the technological challenges we must address to implement interconnection. Quite simply, our challenge is to formulate an electronic representation of a business transaction from the sender's proprietary system, network it to the receiver's system, trigger a response from the receiver's system, and provide some sort of acknowledgment or response to the sender... all without human intervention. We must also consider that both the CLECs and ILECs will use the transaction contents to update their private legacy systems. Our technical challenge is further complicated by the necessity to accommodate various communication protocols, data formats and data contents. Finally, we have to admit to ourselves that technology giants will be trading electronically on a peer to peer basis with organizations which have limited technical resources and budgets. It is also important to note here that each ILEC wants to use a single interface to communicate with multiple CLECs and vice versa.

Two Camps

As a result of the significant marketing investment GE Information

Services has made in this industry, it has become clear to us that there are two distinct camps which have evolved. These camps have evolved due to their position concerning interface format and application integration philosophy i.e., ECLite vs. non-ECLite. Those who support the claim that the only way for true electronic bonding to occur is to bind the applications using ECLite's various layers and services. The non-ECLite camp says that it can satisfy the requirements of legislation and regulatory agencies by implementing alternative interfaces like EDI over TCP/IP and, to date, have done so.

Gateway Solutions

It is the strategy of GE Information Services to provide flexible electronic gateway solutions the telecommunications industry. If implemented properly, a gateway will blur the distinction between the two camps allowing both CLECs and ILECs to focus on single feeds to/from legacy systems. This strategy puts the burden of messaging where it belongs... on the software suppliers. GEIS is busily working to address these challenges. Let's consider for a second what these challenges represent.

The needs of the preorder business function dictate that the gateway must be at least event driven to facilitate nearly real time transaction speeds. Other interconnect business processes have less severe restrictions on messaging speed while others require batch processing during predefined windows of time.

An effective gateway must also be able to deftly handle a variety of external data formats, protocols and speeds. As the word gateway implies, an effective solution must be scaleable to the size of the trading community as well as the needs of the internal systems. For example, trading partner relationships defined in the gateway should be able to receive and translate between EDI and ECLite as well as respond via EDI, proprietary format, email and even fax.

Finally, the gateway solution must also provide administrative features including transaction logging, security, trading partner validation and fault tolerance. Our experience in the electronic commerce business has shown us that in order for any system to be declared "production capable" it must have these baseline features. These necessary features are expensive for each individual organization to write but are part and parcel of commercial gateway software solutions.

Summary

In summary we at GEIS believe that the telecommunications industry is in

an exciting time. We are delighted to be involved with it. Given the resources of General Electric Company, our experience in the electronic commerce market and our experience in the telecommunications industry, we believe that we can fill the role as a provider of flexible gateway solutions and systems integrator for OSS Interconnection applications. We applaud each responsible organization in this industry for making bold, new moves into uncharted waters as the introduction of competition into local service takes its first few steps. Congratulations, best wishes and we'll see you in the winner's circle!

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Common Carrier Bureau Operations Support Systems Forum

PRE-ORDERING

Carol Bussing, AVP, Systems Planning & Integration, Sprint

As a CLEC, we need the tools and access to data that makes the customers' first experience with Sprint, at least as good as that with the ILEC. Accessibility and timeliness of all customer information is critical to providing the level of service expected by the customer.

In order to achieve a competitive environment and to satisfy requirements of the Telecom Act, Sprint requires system parity. The primary area in which the ILECs can currently respond quickly to their retail customers include (1) validation of a customer street address, (2) services that are available at the customer's service address, (3) the ability to have the customer choose and assign a working telephone number and (4) any information of customer service or history. Having to call the customer back due to lack of available information is unacceptable to the customer and to ILEC competitors.

In the area of OSS, there is a key business function called Pre-Order. This is a process that needs to be as "real-time", as possible. This process involves the compilation of data needed in preparation of a service order. As per the FCC's order in Docket 96-98, these interfaces should be electronic machine-to-machine, and should not rely on human intervention in the transfer of data.

Pre-ordering is the process whereby local service providers and network providers exchange information regarding retail services, unbundled network elements and combination of network elements. Sources for the data retrieval include the customer, local service providers internal systems and switch providers internal systems.

Categories of pre-order functions are as follows:

1. Service Availability - This information is required to determine the appropriate central office service area and available features by switch. In situations where a Central Office is serviced by more than one switch. features by switch will be identified.

2. Address Validation - The customers' address will be validated based on street name, house number ranges and additional criteria depicted in the SAG (Street Address Guide).

3. Telephone Number Assignment - Telephone Number Assignment information is used for new customers obtaining service or existing customers desiring to change their current telephone number.

4. Appointment Scheduling - For service requiring the dispatch of a technician to the customer's premise, appointment scheduling information is established to obtain a time period which is convenient for the customer. This time period is also scheduled with the ILEC to ensure resources are available to meet the service requests.

5. Customer Service Record Request - Customer Service Record (CSR) Request data is utilized to provide customer account information regarding an existing customer (e.g. current products and features applicable to the customer for purposes of migration).

To meet the FCC order, the ILECs developed, in most cases, a "GUI" (Graphical User Interface) in front of their legacy (or retail) systems. As depicted in the attachment, every "GUI" system is unique and no two are alike. There is significant training and expense to the CLEC's in this environment. As an interim measure, Sprint has, reluctlanty, had to accept the applications to get into market.

Most GUI tools are not robust and require phone calls to the ILEC's that impact the level of service we can provide the customer. The CSR is critical information. Sprint needs access real-time while the customer is on-line. The ILECs today, in most cases, do not provide on-line access to CSR information, nor is the information consistent from ILEC to ILEC. For

example, when Sprint cannot get the necessary information on the customers' record, we have to call the ILEC, get the information and call back the customer to close the order. The ILEC does not have this restraint when it deals with the customer. Also, system response times are a significant concern when you are live-on-line with a customer. The "GUI" tools are on different hardware/software platforms and they have different connectivity requirements. There has not been enough volume generated to "stress" these "GUIs" applications to ensure adequate response times can be met.

In order to reach system parity, Sprint must have real time availability to the information resident in the ILEC's OSS infrastructure. Only with direct access to this information can we build the necessary and parallel processes to achieve equitable customer care treatment. For example, the end-to-end protocol response time for all on-line transactions should be 5 seconds or less for 90% of the requests.

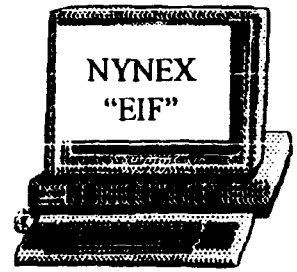
In order to develop the "electronic bonding" solution, it is key to have industry standards. Standards are key to the equitable and real-time exchange of data between CLECs and ILECs. That is when local competition will be a reality.

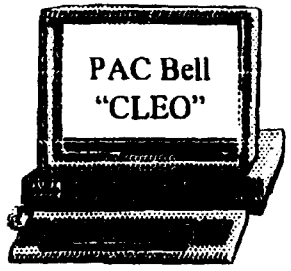
"Current Reality of Pre-Order Interfaces"

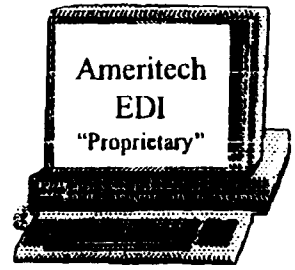
Sprint

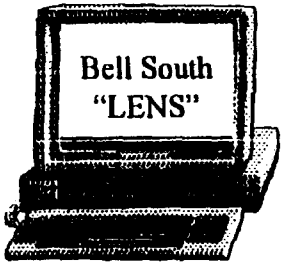
National Integrated Service Center (NISC)

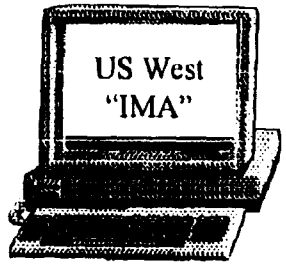
- Each "GUI" tool provided by the ILECs is different (no two are alike).
- Most tools are not robust and require phone calls to ILECs that adversely effect servicing the customers.
- When CSR information is not available, a call is initiated to the ILEC
- A dedicated number of customer service reps have to be assigned to 1 or 2 ILECs each, due to training and complexity of tools.
- Extensive unit cost increases to Sprint in this environment.
- This picture is identical to the environment in our trouble/repair center.











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MAY 30 1997

Federal Communications Commission
Office of Secretary

Speaker: Rob Van Fossen
Representing: U S WEST Communications
Topic: Pre-ordering Prepared Comments
Occasion: FCC Forum on Operations Systems Unbundling
Date: May 28-29, 1997

The subject of our Panel today is "Pre-ordering," and the activities and safeguards necessary to ensure non-discriminatory access to Operations Systems in this area. U S WEST, pre-ordering consists of:

- customer record retrieval
- address verification
- service availability verification
- facility availability verification
- telephone number assignment
- appointment reservation

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U S WEST Communications has invested a significant amount of effort since the release of the FCC First Order last August in defining and implementing preorder transactions, for both its Intereconnection Mediated Access gateway and in the creation of specifications for an EDI gateway. What we have found are some fundamental misconceptions in how preorder transactions are thought about in relation to the ordering process, and some problems that could arise as a result of these misconceptions.

The line between preordering tasks and ordering tasks, for the purposes of Resale or Unbundling, is very thin. The idea that preordering is a set of tasks separate and distinct from ordering is inaccurate. The concept of independence stems from the adaptation of telephony ordering (and preordering) processes to the EDI model, in ways that do not always maintain the integrity of the original business model. Rather, I would offer that the preordering and ordering transactions are co-dependent in quality, such that the quality and timeliness of order fulfillment (i.e., the provisioning of service for the end customer) is critically dependent on the quality of the preordering transactions, and v ice versa.

Let's take the example of the pre-order transaction to validate the service address for the customer. Addresses are widely recognized to be very difficult to match. The customer service representative together with the aid of the customer select from multiple similar definitions of addresses to identify the proper location of the customer.
Collectively, the industry would be overwhelmed with service issues if there were inaccurate communication between the ILEC and the CLEC on the customer address as part of the order. The use of the pre-order address validation transaction can prevent this problem.

Conversely, the quality of several of the pre-order transactions are also dependent on timely knowledge about what is being ordered. Let's use another example, in this case the capability to accurately estimate the work effort required to install the service. As companies continue to work on the efficiency of the Field Technician, jobs are scheduled in higher and higher levels of granularity, with almost no "buffer time" in between. The job of scheduling the calendar is no longer "hit or miss," in the fashion of red, yellow and green lights. Complex software has been developed, based on specific information contained in the service order to determine the length of the job and the next available appointment. Any scheduling conducted without order information is at best a guess. This kind of uninformed scheduling could result in missed appointments, or in customers'

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appointments being pushed to a later date when in fact they could have been worked in a smaller interval.

This quality codependency needs to be accounted for in our gateway systems designs and in our work on national standards for pre-ordering. Digressing for just a moment, I'd like to make a point on the national standards work in this area of pre-order. The standards work on pre-ordering needs to be worked as aggressively as ordering has been to date. The work on ordering via a Local Services Request (LSR) has flown through the standards processes with a speed previously unheard of in recent times. The pre-ordering transactions, on the other hand, have taken second priority, and are not scheduled to be issued until about the third quarter of this year. While I'm not challenging the relative priority of ordering versus pre-ordering, we do have to work these two subjects together in parallel. In the mean time, ILECs and CLECs are forced to develop proprietary solutions, which will eventually cause rework as standards are developed.

Without diminishing in any way the importance of the quality of access to Operations Systems, it is clear that in the end, non-discriminatory treatment will be measured in terms of service that is provided the end customer. As we go forward, choices that are made in how pre-order transactions are conducted will have a significant impact on the quality of service to that customer.

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TELESPHERE
SOLUTIONS, INC.

RECEIVED
MAY 30 1997
Federal Communications Commission
Office of Secretary

Memorandum

To: Kalpac Gude

CC:

From: Venkates Swaminathan

Date: May 23, 1997

Re: Prepared Statement for the FCC's Public Forum on OSS Issues

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The following is the text of Telesphere Solutions, Inc.'s prepared statement as part of the Ordering and Provisioning Panel at the Federal Communications Commission (FCC)'s public forum on issues concerning operations support systems (OSS) for unbundled elements and resale services, to be held May 29, 1997 in Washington, DC.

"Thank you for inviting us to be part of this panel. This statement presents Telesphere Solutions' point of view on several issues regarding Operations Support System (OSS) access, with a specific focus on ordering and provisioning. The 1996 Telecommunications Act mandates that Incumbent Local Exchange Carriers (ILECs) provide Competitive Local Exchange Carriers (CLECs) with parity, non-discriminatory access to OSS functions before they can offer in-region long distance.

"At the platform level, Telesphere believes that ILEC and CLEC OSS interconnection systems should have certain critical features to make OSS interconnection initiatives successful. These features, which are technological fundamentals required to ensure smooth, automated exchange of information between ILECs and CLECs, include:

- "First, scalability. Scalability is important so that as competition grows and order volumes increase, OSS interconnection systems are able to handle them.
- "Second, transaction integrity. OSS interconnection systems must be able to ensure, especially for ordering and provisioning transactions, that a transaction is either completed or entirely rolled back.
- "Third, integrated reporting. OSS interconnection systems must be able to produce reports indicating which orders were processed, why an order was rejected, what the average and maximum order processing times were by trading partner and order

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complexity, and what the availability of the OSS interconnection system was over a period of time.

- "Fourth, availability: OSS interconnection systems must be highly available, to allow high levels of customer service.
- "Fifth, automated connections to internal ILEC and CLEC OSSs. This is crucial to provide the kind of performance needed to create service levels high enough for competition to be viable.
- "Sixth, support for multiple interface standards. The industry is using a variety of different interfaces, both in terms of data formats and transport, and in terms of application definitions. For example, Electronic Data Interchange (EDI), the Web, and EC-Lite are all in use for ordering and provisioning. Consequently, carriers need to support multiple interface types on the same platform.

"Specifically for resale and unbundled network elements, standards are being defined by industry bodies such as the Ordering and Billing Forum (OBF) and the Telecommunications Industry Forum (TCIF). Use of such standards is critical in providing CLECs with a cost-effective, manageable way to offer local service, and in providing ILECs with clear guidelines.

"Independent software vendors like Telesphere Solutions have a major role to play in this process. Products such as PowerGATE, our runtime and development environment for OSS interconnection systems, are being used by a number of ILECs and CLECs to improve service levels and time-to-market. In general, by leveraging infrastructure products focused on electronic communications for telecommunications service providers, vendors can substantially lower the cost of deploying OSS interconnection systems for both ILECs and CLECs, and create higher levels of automation and service."

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Operations Support Systems for Unbundled Elements and Resale Services

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Charlotte F. TerKeurst

This paper describes the on-going review of Operations Support Systems ("OSS") issues in Illinois. As requested, it focuses on ordering and provisioning functions, including the status of Ameritech Illinois' ordering and provisioning OSS. It discusses several facets of assessing the adequacy of an incumbent carrier's OSS, including manual intervention, order rejection, OSS specifications, OSS capacity, and parity.

Review of OSS Issues in Illinois

Ameritech Illinois' OSS are being reviewed in Docket 96-0404, in which the Illinois Commerce Commission ("ICC") is investigating Ameritech Illinois' compliance with Section 271(c) of the Telecommunications Act of 1996. Following initial hearings, the Hearing Examiner issued a Proposed Order on March 6, 1997.

Regarding OSS, the Proposed Order found that it was too early to determine whether Ameritech's OSS will operate properly. It found that internal testing is not adequate; there must be actual testing with other carriers and empirical evidence that Ameritech's OSS are operational and functional. Ameritech must ensure that the connecting carriers have sufficient information, and must work with carriers that experience rejected orders and/or orders that require manual intervention. The Proposed Order concluded that Ameritech must show that carriers are able to utilize Ameritech's OSS in a sufficient manner that will accommodate the demand of a new LEC's services by end users. The Proposed Order's conclusions regarding OSS largely mirror the ICC Staff's position.

After the Proposed Order was issued, Ameritech requested an opportunity to submit additional evidence. As a result, supplemental hearings were held on May 6 and 7, 1997. Supplemental briefs were filed May 21; supplemental reply briefs are due May 30, 1997.

Charlotte F. TerKeurst is Manager of the Telecommunications Division of the Illinois Commerce Commission. The views expressed herein are solely those of the author. The issue of the adequacy of Ameritech Illinois' Operations Support Systems is currently pending before the Illinois Commerce Commission. Positions in this paper should not be construed as indicative of the ICC's views on this issue.

Status of Ameritech's Ordering and Provisioning OSS

Ameritech provides ordering and provisioning OSS using an Electronic Data Interchange ("EDI") interface for wholesale services and an Access Service Request ("ASR") interface for unbundled network elements. New entrants are currently using the EDI interface to order wholesale services, and are using the ASR interface to order unbundled loops and trunks.

The EDI provisioning interface for resale includes the following functions: order confirmation, order jeopardy, order status, and order completion. Resellers are using the EDI order confirmation and order completion functions, but the EDI order jeopardy and order status functions are not yet being used. The ASR provisioning interface for unbundled services offers only order confirmation, and it is being used.

No carrier has ordered unbundled switching or network platforms from Ameritech to date.[1] AT&T provided information during the supplemental hearings in Docket 96-0404 regarding its efforts to order unbundled local switching and to initiate a platform trial. AT&T witness Robert A. Sherry testified that AT&T submitted "a request to Ameritech on January 10th, in both Illinois and Michigan, to implement the platform in a small set of offices using Ameritech's version of shared transport," but that, "we have not got to a stage where we have an agreement on the format to be able to order those in either Michigan or Illinois." In addition, Mr. Sherry testified regarding a suggestion by the U.S. Department of Justice that AT&T and Ameritech undertake a platform trial. While discussions were still underway at the time of the hearings, Mr. Sherry stated that it appeared that the trial will be narrowly focused to test the ordering and provisioning interfaces for unbundled switching and to complete intra-switch calls between AT&T and Ameritech.[2]

Manual Intervention and Order Rejection

One measure of the quality of an incumbent carrier's OSS can be the conditions and frequency with which orders are rejected or manual intervention is required. Obviously, some types of requests will always require manual intervention. However, unnecessary manual intervention may cause undesirable delay and quality problems. Further, high levels of manual intervention call into question a carrier's ability to scale up quickly in response to demand increases.

Ameritech has taken the position that it should be Ameritech's business decision when to rely on manual intervention instead of electronic processing, and that manual intervention

[1] It appears that Ameritech plans to use a mixture of OSS methods for receiving orders for unbundled local switching. Ameritech's Unbundled Services Ordering Guide states that, in addition to faxed manual order forms, Ameritech will accept ASR orders for custom-routed trunk ports and EDI orders for other unbundled local switching port requests.

[2] Docket 96-0404 transcripts at pp. 2061-2063.

does not necessarily delay an order. It also notes that rejections are sometimes caused by improper submissions. It asserts that the checklist obligation is to provide electronic access to OSS functions, not fully electronic processing of all orders, and that the relevant inquiry is whether due dates are met on a parity basis.

While Ameritech's position may have some merit, the incumbent carrier has a clear responsibility to ensure that the connecting carriers have sufficient information to use its OSS, including working with carriers that experience rejected orders and/or orders that require manual intervention. A carrier's OSS specification manuals may not be entirely clear, so that a carrier may reasonably interpret the manuals differently than intended. Further, the incumbent carrier should work with new carriers even when the problem may be an oversight or error on part of the new carrier. Certainly, in a market where a company is wanting to sell a product, the company will make reasonable efforts to assist the customer in its use of the product; this is a reasonable expectation here as well.

There is currently a dispute between Ameritech and AT&T regarding the amount of information that Ameritech should provide to AT&T regarding orders that require manual intervention. AT&T wants to know which of its orders required manual intervention, while Ameritech currently provides only summary information.

For the period January 1997 through March 1997, Ameritech Illinois processed about half of EDI orders electronically; about one-third were processed using manual intervention; and the rest were rejected. ICC Staff does not believe that this level of performance supports a conclusion that Ameritech's OSS are operationally ready. However, the percentage of orders that required manual intervention and the percentage that were rejected both declined significantly during that period, which is a good trend. Further experience is needed to assess whether the trend continues over time and as the volume of orders increases.

Stability of OSS Specifications

Another important measure of the quality of an incumbent carrier's OSS is the stability of the OSS specifications and whether modifications are handled in a manner that does not impede a new carrier's ability to maintain high quality service to its customers during an OSS upgrade. Frequent or unexpected revisions would be a barrier to competition. Further, once specifications are issued or changed, some time and experience is required to assess their quality and work out any problems that may arise.

Ameritech distributed seven volumes of ordering guides as attachments to its supplemental testimony in Docket 96-0404--four volumes for resale dated March 1997, two volumes for unbundled elements dated March 1997, and a general Electronic Service Ordering Guide version 3.3 dated April 3, 1997. AT&T and Sprint state that they received the service ordering guides for the first time through that process and had not had an opportunity to thoroughly review them.

These new guides are a step forward in communicating ordering procedures to new carriers. However, the ordering guides do not provide an adequate mechanism for

changes to the guides or specifications. Ameritech states that it will distribute changes or updates via posting to Ameritech Information Industry Services' Home Page. If a carrier lacks access to the Internet, Ameritech is willing to send that carrier a copy of updates via e-mail or facsimile. ICC Staff believes that it would be better for Ameritech to affirmatively report changes to all users.

There is also a need for stability in service and element specifications. As an example that raises concerns, Ameritech's Resale Services Ordering Guide states that, "Ameritech reserves the right to modify or revise the information contained in this guide at any time, without prior notice." Unilateral changes without adequate notice, whether to the OSS functions or to the services to be ordered using OSS, could wreak havoc with a new carrier's ability to provide service reliably.

Similar concerns regarding changes to OSS interfaces have been raised in Wisconsin. The draft order circulated on May 5, 1997 in Wisconsin's Section 271 docket proposed that Ameritech have a change management system completed and in place before the Public Service Commission of Wisconsin approves Ameritech's Statement of Generally Available Terms. The draft order proposed that a change management system must:

(1) provide sufficient notice of impending changes to allow users to modify and debug their own systems, and to retrain their service representatives;

(2) bundle small and incremental changes into batched upgrades, thus limiting the number of rewrites users must undertake; and

(3) allow users input into the scheduling of upgrades, and allow production users an opportunity to object to Ameritech's implementation of releases that are not "backwards compatible" (i.e., that will not allow software written to the previous versions of the specifications to function.

While the issue of a change management system was not raised during the Illinois hearings, the Wisconsin proposal is interesting and worthy of further consideration.

Adequacy of OSS Capacity

The adequacy of OSS capacity should be assessed from the perspective of both current and future needs of the new local exchange carriers. New carriers should be able to order and receive all elements and services in sufficient quantities and in a manner that will allow them to provide service to their own customers on a commercial basis.

The ability of the incumbent carrier to expand OSS capabilities to meet demand growth must also be assessed. In Illinois, the real-world experience with new carriers using Ameritech's OSS has been somewhat limited. Widespread competition could quickly increase demand for OSS by orders of magnitude. As an example, there are currently only about 15,000 unbundled local loops being used in Illinois. But Ameritech says it is planning on processing over 30,000 unbundled loop orders *per month* by the end of 1997.

Obviously, major changes will have to made, and quickly, to accommodate the entry of a major player such as AT&T in a major metropolitan area.

In the second phase of Docket 96-0404, AT&T reported on its recent experience with resale orders and asserted that, as AT&T's orders ramped up in late April, Ameritech's performance deteriorated. The reasons for this were not entirely clear.

Parity of Access to OSS Functions

Several areas of concern have been expressed regarding the parity of access to OSS functions. As an example, Ameritech assigns a due date, which may be later than the due date that the new entrant requested. Because Ameritech assigns the due dates, measurements of the extent to which such dates are met would not capture any discrimination that may occur in assigning the due dates. Ameritech should provide a carrier a full explanation or documentation if the due date is later than the date that the new entrant requested.

Some amount of reasonable disaggregation is needed for quality and parity reporting. For example, installation intervals for complex business orders are likely to be substantially longer than installation intervals for single-line residence basic local service.

Another reporting measure that has caused concern is Ameritech's reporting of the percent of outages that require more than 24 hours to repair. Use of thresholds such as this would not reveal disparities in average performance.

Conclusion

An incumbent carrier's OSS are a critical component in the development of competition for local telecommunications services. This paper discusses several aspects of evaluating a carrier's ordering and provisioning OSS, based on the current status and experience in Illinois. As described, significant progress has been made but several areas of concern remain.

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FCC OSS FORUM
Ordering and Provisioning Panel
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Vice President, Management Information Systems
Teleport Communications Group Inc.

Good Morning. I am Pat Socci, the Vice President of MIS for Teleport Communications Group (TCG). As you may know, TCG is the largest and most experienced competitive local exchange carrier (CLEC).

I am very pleased to be here today to speak to you about the role that OSS can play in the Ordering and Provisioning of unbundled loops. As a facilities-based CLEC with its own OSS, TCG's interest in the OSS of the ILECs is perhaps different from that of others represented here. We see the ILEC's OSS as simply the means by which the ILEC will meet its statutory obligations to provide interconnection and unbundled network elements to CLECs with the same level of quality and service that it provides to itself. We call this the "Performance Parity Principle" and it is fundamental to the development of local competition.

TCG already has its own OSS infrastructure: we have our own customer service representatives, our own network management centers, our own repair technicians, and our own billing systems. We neither want nor need "unbundled OSS" from the ILEC. On occasion, however, we may choose to purchase an unbundled loop from the ILEC and we fully expect that the ILEC will process our order in a manner that results in quality that is "at least equal" to that which the incumbent provides itself.

Currently, unbundled loops are primarily ordered and provisioned manually – via fax machines and telephone conversations. When submitting an order, TCG generally must